A330-927-12,000-L180

TEXAS AGRICULTURAL EXPERIMENT STATION

B. YOUNGBLOOD, DIRECTOR
COLLEGE STATION, BRAZOS COUNTY, TEXAS

BULLETIN NO. 366 NOVEMBER, 1927

DIVISION OF AGRONOMY

VARIETIES OF COTTON IN THE RED PRAIRIES OF NORTHWEST TEXAS

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS
T. O. WALTON, President

ADMINISTRATION:
*B. YOUNGBLOOD, M. S., Ph. D., *Director*
A. B. CONNER, M. S., *Acting Director*
R. E. KARPER, B. S., *Acting Vice-Director*
J. M. SCHAEDEL, *Secretary*
M. P. HOLLEMAN, JR., *Chief Clerk*
J. K. FRANCKLOW, *Assistant Chief Clerk*
CHESTER HIGGS, *Executive Assistant*
C. B NEBLETTE, *Technical Assistant*

CHEMISTRY:
G. S. FRAPS, Ph. D., *Chief; State Chemist*
E. C. CARLYLE, B. S., *Chemist*
S. E. ASBURY, M. S., *Assistant Chemist*
WALDO H. WALKER, *Assistant Chemist*
VELMA GRAHAM, *Assistant Chemist*
R. O. BROOKE, M. S., *Assistant Chemist*
T. L. OGIER, B. S., *Assistant Chemist*
J. G. EVANS, *Assistant Chemist*
ATHAN J. STERGES, B. S., *Assistant Chemist*
GEORGE SAMUEL CRENSHAW, A. B., *Assistant Chemist*

HORTICULTURE:
———, *Chief*
H. NESS, M. S., *Berry Breeder*

RANGE ANIMAL HUSBANDRY:
J. M. JONES, A. M., *Chief; Sheep and Goat Investigations*
J. L. LUSH, Ph. D., *Animal Husbandman; Breeding Investigations*
W. H. DAMERON, B. S., *Wool Grader*

ENTOMOLOGY:
F. L. THOMAS, Ph. D., *Chief; State Entomologist*
H. J. REINHARD, B. S., *Entomologist*
R. K. FLETCHER, M. A., *Entomologist*
W. L. OWEN, JR., M. S., *Entomologist*
FRANK M. HULL, M. S., *Entomologist*
J. C. GAINES, JR., M. S., *Entomologist*
C. J. TODD, B. S., *Entomologist*
F. F. BIBBY, B. S., *Entomologist*
S. E. MCGREGOR, JR., *Acting Chief Foulbrood Inspector*
A. B. KENNERLY, *Foulbrood Inspector*
GILLIS GRAHAM, *Foulbrood Inspector*

AGRONOMY:
E. B. REYNOLDS, M. S., *Chief*
A. B. CONNER, M. S., *Agronomist; Grain Sorghum Research*
R. E. KARPER, B. S., *Agronomist; Small Grain Research*
P. C. MANGELSDORF, Sc. D., *Agronomist; in charge of Corn and Small Grain Investigations*
D. T. KILLOUGH, M. S., *Agronomist; Cotton Breeding*
H. E. REA, B. S., *Agronomist; Cotton Root Rot Investigations*
E. C. CUSHING, B. S., *Assistant in Crops*
P. R. JOHNSON, B. S., *Assistant in Soils*

VETERINARY SCIENCE:
**M. FRANCIS, D. V. M., *Chief*
H. SCHMIDT, D. V. M., *Veterinarian*
J. D. JONES, D. V. M., *Veterinarian*

PLANT PATHOLOGY AND PHYSIOLOGY:
J. J. TAUBENHAUS, Ph. D., *Chief*
L. J. PESSIN, PH. D., *Plant Pathologist and Laboratory Technician*
W. J. BACH, M. S., *Plant Pathologist*
J. PAUL LUSK, S. M., *Plant Pathologist*
B. F. DANA, M. S., *Plant Pathologist*

FARM AND RANCH ECONOMICS:
L. P. GABBARD, M. S., *Chief*
*B. YOUNGBLOOD, M. S., Ph. D., *Farm and Ranch Economist*
G. L. CRAWFORD, M. S., *Marketing Research Specialist*
V. L. CORY, M. S., *Grazing Research Botanist*
***T. L. GASTON, JR., B. S., *Assistant; Farm Records and Accounts*
***J. N. TATE, B. S., *Assistant; Ranch Records and Accounts*

RURAL HOME RESEARCH:
JESSIE WHITACRE, Ph. D., *Chief*

SOIL SURVEY:
***W. T. CARTER, B. S., *Chief*
H. W. HAWKER, *Soil Surveyor*
E. H. TEMPLIN, B. S., *Soil Surveyor*
T. C. REITCH, B. S., *Soil Surveyor*

BOTANY:
H. NESS, M. S., *Chief*

PUBLICATIONS:
A. D. JACKSON, *Chief*

SWINE HUSBANDRY:
FRED HALE, M. S., *Chief*

DAIRY HUSBANDRY:
———, *Chief*

POULTRY HUSBANDRY:
R. M. SHERWOOD, M. S., *Chief*

****AGRICULTURAL ENGINEERING:**

MAIN STATION FARM:
G. T. MCNESS, *Superintendent*

APICULTURE (San Antonio):
H. B. PARKS, B. S., *Chief*
A. H. ALEX, B. S., *Queen Breeder*

FEED CONTROL SERVICE:
F. D. FULLER, M. S., *Chief*
S. D. PEARCE, *Secretary*
J. H. ROGERS, *Feed Inspector*
W. H. WOOD, *Feed Inspector*
K. L. KIRKLAND, B. S., *Feed Inspector*
W. D. NORTHCUTT, JR., B. S., *Feed Inspector*
SIDNEY D. REYNOLDS, JR., *Feed Inspector*
P. A. MOORE, *Feed Inspector*

SUBSTATIONS

No. 1, Beeville, Bee County:
R. A. HALL, B. S., *Superintendent*

No. 2, Troup, Smith County:
W. S. HOTCHKISS, *Superintendent*

No. 3. Angleton, Brazoria County:
R. H. STANSEL, M. S., *Superintendent*
FRANK M. HULL, M. S., *Entomologist*

No. 4, Beaumont, Jefferson County:
R. H. WYCHE, B. S., *Superintendent*

No. 5, Temple, Bell County:
HENRY DUNLAVY, M. S., *Acting Superintendent*
B. F. DANA, M. S., *Plant Pathologist*
H. E. REA, B. S., *Agronomist; Cotton Root Rot Investigations*

No. 6, Denton, Denton County:
P. B. DUNKLE, B. S., *Superintendent*

No. 7, Spur, Dickens County:
R. E. DICKSON, B. S., *Superintendent*

No. 8, Lubbock, Lubbock County:
D. L. JONES, *Superintendent*
FRANK GAINES, *Irrigationist and Forest Nurseryman*

No. 9, Balmorhea, Reeves County:
J. J. BAYLES, B. S., *Superintendent*

o. 10, Feeding and Breeding Station, near College Station, Brazos County:
R. M SHERWOOD, M. S., *Animal Husbandman in Charge of Farm*
L. J. MCCALL, *Farm Superintendent*

No. 11, Nacogdoches, Nacogdoches County:
H. F. MORRIS, M. S., *Superintendent*

***No. 12, Chillicothe, Hardeman County:**
J. R. QUINBY, B. S., *Superintendent*
***J. C. STEPHENS, M. A., *Junior Agronomist*

No. 14, Sonora, Sutton-Edwards Counties:
E. W. THOMAS, B. S., *Superintendent*
———, *Veterinarian*
V. L. CORY, M. S., *Grazing Research Botanist*
***O. G. BABCOCK, B. S., *Collaborating Entomologist*
O. L. CARPENTER, *Shepherd*

No. 15, Weslaco, Hidalgo County:
W. H. FRIEND, B. S., *Superintendent*
M. MCPHAIL, B. S., *Entomologist*
W. J. BACH, M. S., *Plant Pathologist*

No. 16, Iowa Park, Wichita County:
E. J. WILSON, B. S., *Superintendent*
J. PAUL LUSK, S. M., *Plant Pathologist*

Teachers in the School of Agriculture Carrying Cooperative Projects on the Station:

G. W. ADRIANCE, M. S., *Associate Professor of Horticulture*
S. W. BILSING, Ph. D., *Professor of Entomology*
V. P. LEE, Ph. D., *Professor of Marketing and Finance*
D. SCOATES, A. E., *Professor of Agricultural Engineering*
H. P. SMITH, M. S., *Associate Professor of Agricultural Engineering*

†As of October 1, 1927.
*On leave.
**Dean, School of Veterinary Medicine.
***In cooperation with U. S. Department of Agriculture.
****In cooperation with the School of Agriculture.

SYNOPSIS

The Red Prairies of Northwest Texas are favorable to the production of cotton, and the yields of a number of the best varieties in these experiments for the past eight years have averaged slightly more than one-half bale to the acre.

Cotton is a crop that has the ability to take advantage of short periods of favorable growth conditions, and it is this characteristic that makes cotton well adapted in this section, where the limiting factor in production is the distribution of summer rainfall. The shortness of the growing season is a determining factor in varietal adaptation.

Varieties that have the greatest possibility in this section are fairly early in maturing, have bolls of medium size, have a high percentage of lint, and produce lint not longer than an inch and a sixteenth. Varieties in which short lint, earliness, and high gin-turn-out are associated produce more lint cotton to the acre than other varieties. However, this section is one that can consistently produce cotton of one-inch staple, and a number of varieties that produce lint of that length are well adapted to the prevailing conditions.

CONTENTS

BULLETIN NO. 366 NOVEMBER, 1927

VARIETIES OF COTTON IN THE RED PRAIRIES OF NORTHWEST TEXAS

J. ROY QUINBY.

Substation No. 12 of the Texas Agricultural Experiment Station is located in the eastern part of Hardeman County southwest of Chillicothe about midway between the Red and Pease Rivers, and in the section generally known as Northwest Texas.

The soil composing the Station farm was derived from the weathering of the Permian Red Beds and belongs, in the main, to two soil types technically known as Vernon fine sandy loam and Kirkland loam, but is hardly red enough to be typical. The soil is a brown to reddish-brown loam or sandy loam to the depth of about ten inches, and is underlaid by a reddish-brown clay. This type of soil is generally referred to as "mixed land" and is quite representative of a large part of this section of Texas.

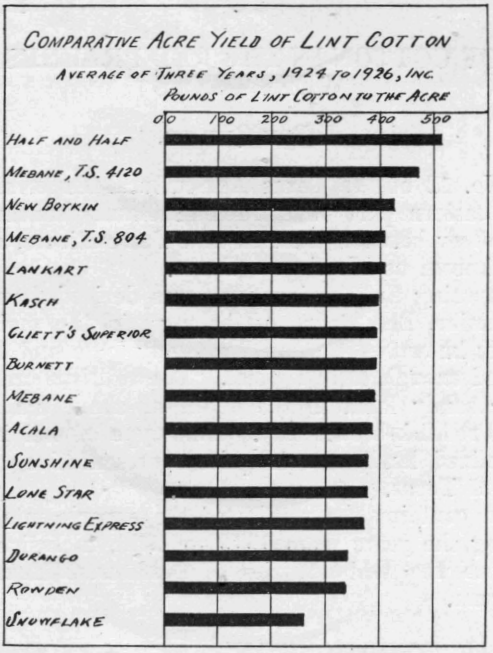
This Bulletin contains the results of the experiments with varieties of cotton during the years from 1919 to 1926, inclusive. The results are applicable to the Red Prairies of Northwest Texas and Southwestern Oklahoma.

CLIMATIC CONDITIONS AND COTTON PRODUCTION

The climate is classified as semi-arid. The precipitation is relatively low and unevenly distributed, and about 70 per cent of the annual precipitation falls during the months from April to September. High

Table No. 1.—Monthly and yearly rainfall in inches at Chillicothe, Texas, 1919 to 1926, inclusive with 21-year average.

	1919	1920	1921	1922	1923	1924	1925	1926	8-Year Average	21-Year Average
January	.26	1.92	.31	.61	2.02	.13	.45	.88	.82	.44
February	.76	.63	1.02	.66	.57	.13	.10	.00	.48	.70
March	2.28	1.49	1.20	1.46	.61	1.90	.19	1.66	1.35	1.39
April	5.27	2.41	.69	5.14	2.77	2.10	2.44	4.45	3.16	2.61
May	8.79	9.66	.67	4.03	6.75	1.05	4.34	2.67	4.75	3.47
June	2.88	1.45	9.60	1.53	4.17	2.57	1.95	4.29	3.56	3.57
July	1.22	1.39	.06	3.66	.13	3.80	2.47	2.85	1.95	2.36
August	1.41	8.37	2.73	.10	5.31	2.23	5.23	4.78	3.77	2.78
September	2.64	3.61	1.52	.85	2.81	.67	7.79	4.60	3.06	2.72
October	13.23	5.42	.03	.85	8.24	2.31	.91	1.94	4.12	3.51
November	2.24	2.83	T	.48	2.80	.40	1.01	.17	1.24	1.37
December	.29	.51	.13	.05	1.08	.34	.16	3.55	.76	1.11
Total	41.27	39.69	17.96	19.42	37.26	17.63	27.04	31.84	29.01	26.04
Total—June, July, August	5.51	11.21	12.39	5.29	9.61	8.60	9.65	11.92	9.27	8.71
Acre yield of lint cotton in pounds	370	387	324	140	32	331	305	512	300.12	



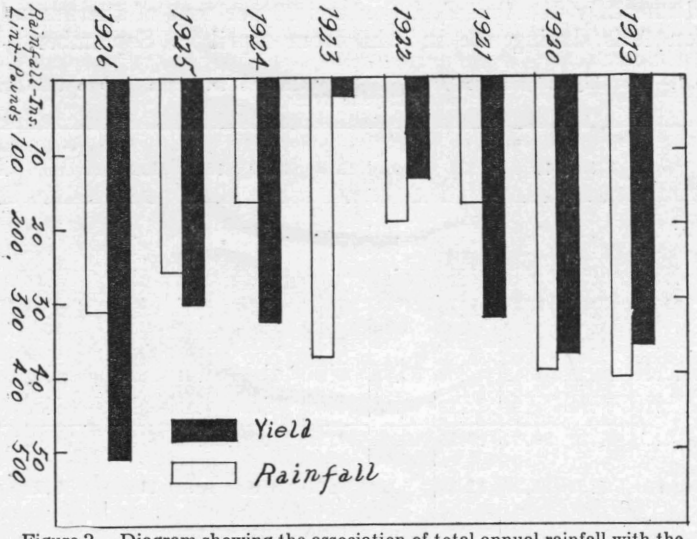


Figure 2.—Diagram showing the association of total annual rainfall with the yield of lint cotton to the acre.

summer temperatures, low atmospheric humidity, high wind velocity, and a large proportion of clear days result in excessive evaporation. The high evaporation reduces the effectiveness of the rainfall, especially during the summer months. Summer night temperatures as well as day temperatures are high. The average length of the frost-free period is 223 days.

PRECIPITATION

The monthly, summer, and annual rainfall for the years during which the experiments were conducted and the yield* of lint cotton to the acre for each year are given in Table 1. The average yield for the eight-year period was 300 pounds of lint cotton to the acre, and in six years out of the eight the yield was above this average. The yields during the period were not in proportion to the total annual rainfall, as shown by Figure 2, or to the total summer rainfall of June, July, and August. The low yield of 1923 was due largely to damage by cotton boll worm to a crop which was replanted in June after a destructive hail. With the exception of that year, the yields reflect the distribution of summer rainfall. The distribution of summer rainfall is the limiting factor in the production of cotton in this section. The month of August is the critical period.

LENGTH OF GROWING SEASON

The length of the frost-free period and the prevalence of hot days and warm nights influence the production of cotton and have a decided bearing upon varietal adaptation. After September 1 the growth of cotton plants is retarded by the occurrence of cool nights, which become progressively colder as the season advances. The average date of the first killing frost in the fall is November 6 and the season is usually of sufficient length to assure the maturity of a cotton crop; but in case the crop is planted late, or is retarded by drouth during the summer, or is planted to an unadapted variety, the shortness of the growing season may be a limiting factor in production. The length of the growing season is relatively of less importance in this section than the distribution of summer rainfall.

THE REACTION OF THE COTTON PLANT TO CLIMATIC CONDITIONS

Temperature conditions usually prohibit the successful planting of cotton until May 1, and planting is done as soon after that date as possible. However, it is not unusual for a good crop to be made if planting is delayed until June 15.

Blooming ordinarily begins about July 10, and bolls set before September 1 may, barring insect damage, reasonably be expected to mature.

*The yields as given are those of Mebane cotton grown in the Cotton Spacing Test with the exception of 1923. The yield of that year is that of Mebane cotton grown in the Cotton Variety Test.

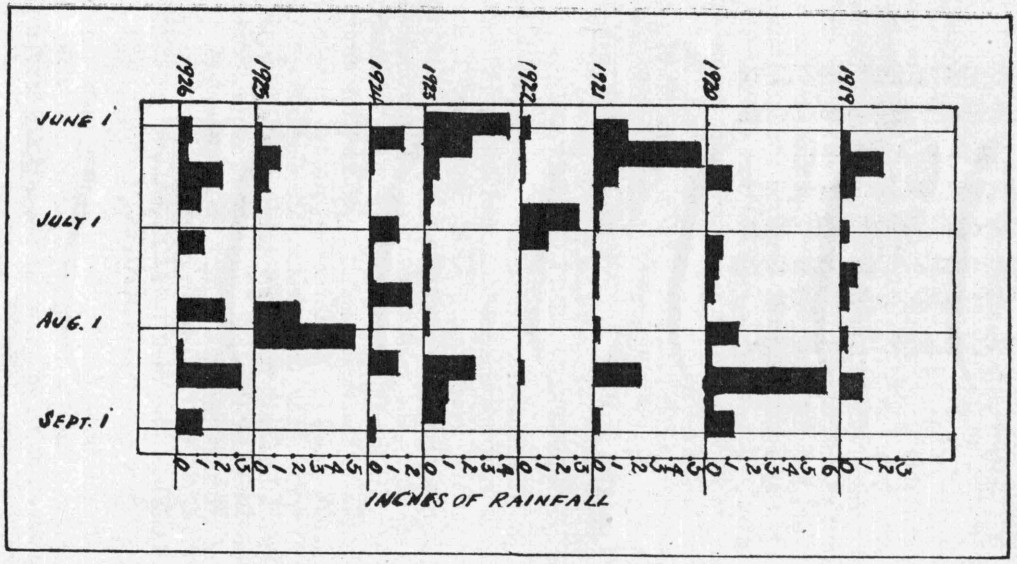


Figure 3.—Diagram showing the distribution of summer rainfall for the years from 1919 to 1926, inclusive.

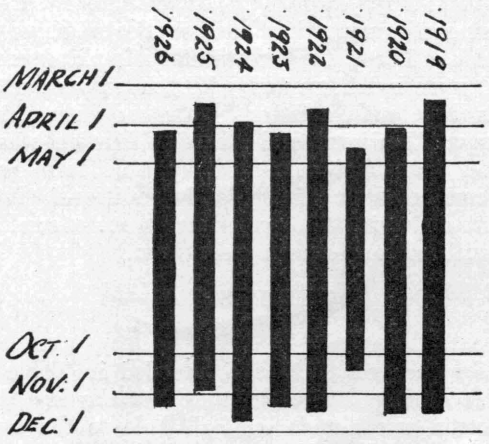


Figure 4.—Diagram showing the length of the frost-free period for each of the years from 1919 to 1926, inclusive.

Cotton is a plant of indeterminate growth habit, and has the ability to take advantage of short periods of favorable growth conditions. During periods of drouth, cotton plants practically cease growth, and in case of severe and prolonged drouth may shed leaves, squares, and bolls. When drouth is broken by an effective rain, growth is immediately resumed and squares and bolls are set at the new joints on the fruiting branches. It is this characteristic of the cotton plant that makes cotton well adapted to this section of Texas, where summer drouths are prevalent, and where a limiting factor in production is the poor distribution of summer rainfall.

VARIETAL EXPERIMENTS

The object of the variety experiments was to determine the adaptation and the value of the various cotton varieties under the growing conditions of this section of Texas; and to discover, if possible, the characteristics that determined the value of each variety. In the following tables data are presented on those features of the experiment pertinent to this object.

EXPERIMENTAL METHODS

The methods followed in these experiments are briefly outlined below. The width of row in every instance was 40 inches. The plats were thinned to single plants 18 inches apart in the row as nearly as the original stand would permit.

There has been some change in the size and arrangement of the plats since the experiments were begun, and the changes have been to increase the number of replications and to decrease the size of plat. Of

late years the plats have been 1/84 of an acre in area, exclusive of guard rows, and each variety has been replicated three times (making four plats in all). The outside rows of each plat were designated as guard rows and were not harvested with the remainder of the plat.

Planting was done with a lister planter or with a two-row planter in a lister furrow. Uniform and clean cultivation was practiced and none given other than that demanded by good farm practice. All of the tests were conducted under dry-land conditions. No fertilizer was used. The land on which the experiments were conducted was in a crop rotation, with cotton following sorghum.

THE RESULTS

Results in 1919

The results for the year 1919 are recorded in Table 2. Conditions for plant growth during the season were not the best, but the average yield of lint cotton was almost one-half bale to the acre. There was a difference of 107 pounds of lint cotton to the acre between the highest yielding variety, Half and Half, and the lowest yielding variety, Bennett's Lone Star. Half and Half was the only variety that produced lint shorter than one inch in length.

Table No. 2.—Cotton Variety Test—1919.

T.S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Pounds	
				*Seed Cotton	Lint Cotton
3675	Half and Half	35.47	14	939.3	311.2
3660	Truitt	34.52	17	867.4	295.1
3656	Acala	32.37	18	893.5	285.9
3653	Belton	30.68	17	923.7	275.2
3632	Mebane	36.05	17	765.3	270.3
3637	Kasch	37.86	17	735.1	270.3
3666	Durango	31.33	18	867.4	265.4
3648	Lone Star	36.23	17	714.7	254.8
3638	New Boykin	35.71	16	730.2	254.8
3668	Foster	30.12	18	867.4	254.8
3670	Snowflake	30.00	20	785.7	229.5
3650	Rowden	33.33	17	699.1	224.6
3640	Bennett's Lone Star	36.36	17	566.8	204.2

*Yields of seed cotton reported in this and the following tables represent field weights. Ginning percentage is based on clean seed cotton.

Results in 1920

The results for the year 1920 are recorded in Table 3. Growing conditions were fairly favorable throughout the season, and yields were slightly better than in 1919. Acala was the outstanding variety in point of yield and produced 105 pounds more lint cotton to the acre than the next highest yielding variety. The high yield made by Acala in this year is largely responsible for the high average for the period made by this variety. Foster and Snowflake, the two longest staple varieties, produced the lowest yields of any of the ten varieties. Kasch had lint of seven-eighths inch in length, and was the only variety that produced lint shorter than one inch.

Table No. 3.—Cotton Variety Test—1920.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Pounds	
				Seed Cotton	Lint Cotton
4131	Acala	34.00	17	1213.3	404.6
4115	Bennett's Lone Star	33.82	17	936.6	299.3
4114	Durango	30.93	20	962.0	288.9
793	Belton	33.33	17	853.3	270.2
4119	Lone Star	34.98	17	813.3	274.8
4120	Mebane	36.15	16	760.0	265.4
4117	Kasch	37.74	14	730.0	260.4
3150	Lone Star Sel	33.93	17	733.3	244.6
3668	Foster	30.09	21	810.0	228.1
4118	Snowflake	27.88	21	815.0	218.8

Results in 1921

The results for the year 1921 are recorded in Table 4. Growing conditions were unfavorable until the middle of August, but the crop grew well during the remainder of the season. The average yield was slightly less than one-half bale to the acre. No outstanding yield was made by any variety. Mebane, Rowden, and Kasch led the list; Acala was well toward the bottom; and the three longer-staple varieties, Durango, Snowflake, and Foster, were the lowest in yield. Lint shorter than one inch was produced by Mebane, Kasch, Truitt, and Lone Star Selection, T. S. 5995.

Table No. 4.—Cotton Variety Test—1921.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Pounds	
				Seed Cotton	Lint Cotton
5989	Mebane	36.10	15	773.56	274.66
5993	Rowden	34.11	17	782.10	266.70
5992	Kasch	38.00	15	683.10	259.57
5986	Lone Star	33.33	17	742.50	247.40
5990	Truitt	34.73	14	702.90	244.03
5994	Bennett's Lone Star	36.37	16	633.60	230.37
5995	Lone Star Sel	36.55	15	623.70	227.89
5988	Acala	33.97	18	663.30	225.22
5984	Belton	33.98	17	653.40	221.95
5987	Durango	30.95	19	702.90	217.50
5991	Snowflake	28.38	22	712.80	202.25
3668	Foster	28.31	19	643.50	182.16

Results in 1922

The results for the year 1922 are recorded in Table 5. The growing season was very unfavorable as there was no effective rain from July 8 to September 9. The average yield of lint was less than 100 pounds to the acre. There was no great difference in yield between the ten highest varieties. The effect of the adverse seasonal conditions upon the length of lint was noticeable, and the only varieties that produced lint longer than one inch were Acala, Lightning Express, Durango, and Snowflake. These four varieties were also the lowest in yield.

Table No. 5.—Cotton Variety Test—1922.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Pounds	
				Seed Cotton	Lint Cotton
6565	Lone Star	34.37	14	337.69	116.12
6573	Kasch	36.79	12	305.71	112.45
5984	Belton	30.68	15	359.25	109.45
804	Mebane	34.14	14	303.08	103.41
6572	Bennett's Lone Star	34.90	14	294.88	102.92
6563	Mebane	35.57	14	282.98	100.74
6574	Rowden	31.35	15	305.92	96.12
6566	Truitt	33.08	13	292.67	94.71
6570	Lone Star Sel.	32.42	12	280.78	90.70
6571	Acala	30.94	16	302.45	90.42
6567	Lightning Express	25.48	18	286.03	72.51
6564	Durango	28.06	16	199.35	55.94
6575	Snowflake	25.07	18	200.40	50.21

Results in 1923

The results for the year 1923 are recorded in Table 6. The yields were lower than in any other year reported on in this Bulletin, due to adverse seasonal conditions and to insect damage. A hail on May 30 destroyed the entire crop and the test was replanted on June 15. From the date of the last planting until August there was no effective rainfall. During the last half of August a heavy crop of bolls was set but the greater part of it was destroyed by an infestation of cotton boll worm. The late-maturing varieties suffered most, and produced the lowest yield of lint cotton to the acre. None of the thirteen varieties produced lint of less than one inch in length.

Table No. 6.—Cotton Variety Test—1923.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Pounds	
				Seed Cotton	Lint Cotton
6781	Acala	31.37	19	184.59	55.08
6810	Kasch	38.61	16	136.87	50.82
4120	Mebane	29.35	18	169.41	45.86
6796	Lightning Express	25.65	21	193.03	45.52
6802	Hallmark	24.76	21	188.40	44.11
6807	Cliett's Superior	36.15	19	122.18	41.92
7237	Mebane	27.04	16	126.87	32.14
6786	New Boykin	31.14	17	101.28	27.72
6785	Sunshine	33.74	17	79.26	25.80
6784	Bennett's Lone Star	33.33	18	65.71	20.41
6783	Lone Star	31.60	17	57.40	17.71
6787	Snowflake	28.58	21	46.05	10.92
6797	Rowden	33.28	18	25.52	7.63

Results in 1924

The results for the year 1924 are recorded in Table 7. The season was one of light but well distributed rainfall. The cotton plants did not make excessive growth, but there was sufficient moisture in the soil at all times to cause the plants to retain most of their blooms. Two of the varieties, Half and Half and Lankart, produced a bale to

the acre; and a third, Mebane, T. S. 4120, approached a bale very closely. The longer-staple varieties were again the lowest in yield. A number of varieties produced lint of less than one inch in length.

Table No. 7.—Cotton Variety Test—1924.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Lbs.		No. of Bolls to Pound	Per Cent of Crop Harvested 143 Days from Planting
				Seed Cotton	Lint Cotton		
7419	Half and Half	37.96	14	1335.48	500.79	88	28.33
7384	Lankart	39.58	17	1308.11	500.71	63	11.83
4120	Mebane	35.01	16	1410.72	491.62	88	35.51
7459	Cliett's Superior	38.16	14	1266.33	468.90	70	13.81
7408	Mebane	37.20	14	1264.57	468.24	70	14.12
7388	New Boykin	36.54	16	1211.21	433.89	77	21.50
7385	Kasch	39.03	14	1104.81	429.85	72	12.56
7387	Sunshine	32.57	15	1354.31	425.36	70	22.18
7386	Lone Star	34.79	16	1213.79	407.81	76	17.54
804	Mebane	31.61	14	1249.28	382.62	94	36.45
7391	Rowden	34.48	16	1100.85	376.67	75	16.77
6314	Burnett	30.83	15	1204.60	355.69	107	43.52
7381	Acala	33.01	17	1080.32	352.79	84	26.78
7390	Durango	32.18	16	1093.00	350.06	94	24.24
7394	Lightning Express	33.98	18	953.80	311.43	107	48.29
7389	Snowflake	28.84	19	1066.70	296.62	97	9.23

Results in 1925

The results for the year 1925 are recorded in Table 8.

There was a severe drouth during July and another in September, but a favorable month of August resulted in high yields. An infestation of cotton leaf worm destroyed the leaves of the cotton plants about October 1. This destruction of the leaves retarded the growth and development of the bolls, and yields were lowered somewhat. The late-maturing varieties suffered most. Half and Half again produced the largest yield of lint cotton to the acre. The higher-yielding vari-

Table No. 8.—Cotton Variety Test—1925.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Lbs.		No. of Bolls to Pound	Per Cent of Crop Harvested 132 Days from Planting
				Seed Cotton	Lint Cotton		
7419	Half and Half	36.04	17	1396.25	492.93	82	36.52
6314	Burnett	30.36	16	1471.59	439.14	91	41.11
7852	New Boykin	36.18	17	1198.18	426.76	81	31.22
804	Mebane	31.57	16	1362.81	419.47	80	49.26
4120	Mebane	32.96	16	1286.12	417.99	89	43.39
7848	Cliett's Superior	37.81	17	1094.33	408.62	69	29.00
7859	Mebane	37.34	17	1049.68	387.01	70	16.35
7858	Kasch	36.80	16	1054.28	383.76	71	29.46
8310	Lankart	38.67	17	993.72	380.70	53	13.75
7394	Lightning Express	27.68	19	1408.43	380.70	100	46.69
7854	Acala	32.11	18	1186.16	374.35	80	43.82
7851	Lone Star	37.55	17	968.66	355.60	59	21.07
7390	Durango	32.85	17	1059.81	339.45	94	36.27
7857	Sunshine	33.81	18	935.43	311.33	66	29.30
7855	Rowden	33.32	16	900.91	294.14	73	14.62
7849	Snowflake	28.75	21	699.43	198.85	86	19.64

eties were, for the most part, early; and the lower-yielding varieties were those that normally produce lint of 1 1/16 inches in length or longer, or those that mature late. It was noticeable that all the Mebane strains were above the average yield.

Results in 1926

The results for the year 1926 are recorded in Table 9. Greater yields were made in this year than in any other covered in this Bulletin. The season was one of abundant and well distributed rainfall. A good stand did not result from the first planting and the test was replanted on May 29, which is about two weeks later than the best planting date. Freezing temperatures were not recorded until November 9 but the leaves of cotton plants died about October 1 during a period of cold, damp weather. Late-maturing varieties were at a disadvantage due to late planting and to the shortened growing season. The five varieties that produced the highest yield of lint to the acre had the shortest lint and the highest percentage of lint. Lightning Express, a variety that normally produces lint of 1⅛ to 1¼ inches, but which matures early, yielded more lint cotton to the acre than many varieties with shorter lint but which mature late. There was a wide range in lint percentage among the varieties, and the low lint percentages, especially those of Burnett and Mebane, T. S. No. 804, are not typical of the varieties. Unusual weather conditions immediately preceding the maturity of the crop probably account for these low percentages.

Table No. 9.—Cotton Variety Test—1926.

T. S. No.	Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield, Lbs.		No. of Bolls to Pound	Per Cent of Crop Harvested 116 Days from Planting
				Seed Cotton	Lint Cotton		
9249	Half and Half	41.70	8	1351.54	561.83	80	24.76
9248	Western Wonder	39.59	10	1353.53	535.06	83	21.06
8587	Cook	35.83	15	1486.70	531.93	83	22.35
8594	Bank Account	35.54	10	1481.80	523.36	90	21.65
4120	Mebane	36.36	10	1398.10	507.63	68	23.23
8589	Wilson's Cleveland Big Boll	31.67	17	1586.82	500.96	86	27.11
8487	Westex	30.61	14	1510.01	460.09	87	32.42
804	Mebane	31.67	14	1393.20	439.82	75	27.46
8609	Acala	31.67	17	1371.22	434.13	76	21.46
8599	New Boykin	34.17	17	1271.47	433.19	66	15.56
8605	Lightning Express	28.74	20	1460.45	419.58	90	38.96
8597	Trice	29.04	17	1417.46	409.79	103	25.48
8596	Sunshine	31.14	18	1277.35	396.88	63	11.63
6314	Burnett	25.03	14	1561.18	390.31	88	34.55
8585	Kasch	33.65	17	1142.82	383.99	64	16.22
8590	Lone Star	33.65	16	1095.63	367.82	61	12.45
8593	Lankart	34.17	18	1020.12	348.16	50	5.66
8613	Rowden	31.51	17	1102.50	347.07	56	10.00
7390	Durango	29.88	21	1105.78	329.53	82	18.10
8588	Mebane	34.07	18	944.37	318.72	50	7.30
8584	Cliett's Superior	34.85	17	892.16	309.50	59	7.30
9247	Kekchi	31.87	17	974.84	309.23	68	17.97
8601	Blue Wagon	32.61	17	925.97	301.50	59	10.87
8595	Snowflake	27.06	24	1051.95	281.09	69	8.67

The data presented in Table 10 afford the basis for a description of the various cotton varieties with regard to lint length, size of boll, earliness, percentage of lint, and productiveness. The lint length is given in sixteenths of an inch. The size of boll is indicated by the figure in the column headed "Number of Bolls to Pound." A small number shows the boll to be large and a large number shows the boll to be small. The comparative earliness is shown under the heading "Per Cent of Crop Harvested at First Picking." The gin turn-out or lint per cent is given under the heading "Per Cent Lint." The percentage of lint of all of these varieties included in this three-year period is uniformly low and particularly so in 1926. The average per cent of lint, therefore, should not be considered as the ginning percentage of the variety, but the relative differences between varieties is undoubtedly correct. The varieties are ranked according to yield of lint cotton.

Varieties that have the greatest possibility in this section are fairly early, have bolls of medium size, have a high percentage of lint, and produce lint not longer than 1 1/16 inches. Varieties in which short lint, earliness, and high gin turn-out are associated produce more lint to the acre than other varieties. However, this section is one that can consistently produce cotton of one-inch staple, and a number of varieties that produce lint of that length are well adapted to the prevailing conditions.

Table No. 10.—Cotton Variety Test—Three-year Average, 1924 to 1926, inclusive.

Variety	Per Cent of Lint	Length of Lint, 16th Inches	Acre Yield Pounds of Lint Cotton	No. of Bolls to Pound	Per Cent of Crop Harvested at First Picking
Half and Half	38.57	13	518.7	83	29.87
Mebane, T. S. 4120	34.78	14	472.7	82	34.04
New Boykin	35.63	17	431.3	75	22.76
Mebane, T. S. 804	31.62	15	414.0	83	37.89
Lankart	37.47	17	410.0	55	10.41
Kasch	36.49	16	399.3	69	19.41
Cliett's Superior	36.94	16	396.0	66	16.70
Burnett	28.74	15	395.0	95	39.73
Mebane	36.20	16	391.3	63	12.59
Acala	32.26	17	387.0	80	30.69
Sunshine	32.51	17	377.7	66	21.04
Lone Star	35.33	16	377.3	65	17.02
Lightning Express	30.13	19	370.7	99	44.65
Durango	31.64	18	339.7	90	26.20
Rowden	33.10	16	339.3	68	13.80
Snowflake	28.22	21	259.0	84	12.51

A summary of the lint-cotton yields of the various varieties grown during the years 1919 to 1926, inclusive, is given in Table 11. The results justify the following conclusions:

(1) Half and Half is a high producer, is early, has a high gin turn-out, and produces lint of $\frac{7}{8}$ inch in length.

(2) Burnett normally produces lint of 15/16 inch in length. The variety is not recommended for general planting because of its small

Table No. 11.—Cotton Variety Test, Summary, 1919 to 1926, inclusive—Lint Yield, Pounds to the Acre.

Variety Name	1919	1920	1921	1922	1923	1924	1925	1926	8-Year Average 1919-26	Rank	7-Year Average 1919-22, 1924-26	Rank	3-Year Average 1919-21	Rank	3-Year Average 1919, 1921-22	Rank	3-Year Average 1924-26	Rank
Acala	286	405	225	90	55	353	374	434	277.8	1	309.6	1	305.3	1	200.3	6	387.0	10
Kasch	270	260	260	112	51	430	384	384	268.9	2	300.0	2	269.7	2	214.0	2	399.3	6
Mebane	270	265	274	101	32	468	387	319	264.5	3	297.7	3	263.3	3	215.0	1	391.3	9
Lone Star	255	275	247	116	18	408	356	368	255.4	4	289.3	4	259.0	4	206.0	4	377.3	12
Snowflake	230	219	202	50	11	297	199	281	186.1	5	211.1	6	217.0	9	160.7	10	259.0	16
Durango	265	289	218	56	....	350	339	330	.....	.....	263.9	5	257.3	5	179.7	8	339.7	14
Half and Half	311	....	....	....	....	501	493	562	.....	.....	.....	.....	.....	.....	.....	.....	518.7	1
Mebane, T.S.4120	....	....	....	....	46	492	418	508	.....	.....	.....	.....	.....	.....	.....	.....	472.7	2
New Boykin	255	....	....	....	28	434	427	433	.....	.....	.....	.....	.....	.....	.....	.....	431.3	3
Mebane, T.S. 804	....	....	....	103	....	383	419	440	.....	.....	.....	.....	.....	.....	.....	.....	414.0	4
Lankart	....	....	....	....	....	501	381	348	.....	.....	.....	.....	.....	.....	.....	.....	410.0	5
Cliett's Superior	....	....	....	....	42	469	409	310	.....	.....	.....	.....	.....	.....	.....	.....	396.0	7
Burnett	....	....	....	....	....	356	439	390	.....	.....	.....	.....	.....	.....	.....	.....	395.0	8
Sunshine	....	....	....	....	26	425	311	397	.....	.....	.....	.....	.....	.....	.....	.....	377.7	11
Lightning Express	....	....	....	73	46	311	381	420	.....	.....	.....	.....	.....	.....	.....	.....	370.7	13
Rowden	225	....	267	96	8	377	294	347	.....	.....	.....	.....	.....	.....	196.0	7	339.3	15
Belton	275	270	222	109	....	....	....	....	.....	.....	.....	.....	255.7	6	202.0	5	.....	.....
Bennett's Lone Star	204	299	230	103	20	....	....	....	.....	.....	.....	.....	244.3	7	179.0	9	.....	.....
Foster	255	228	182	....	....	....	....	....	.....	.....	.....	.....	221.7	8	.....	.....	.....	.....
Truitt	295	....	244	95	....	....	....	....	.....	.....	.....	.....	.....	.....	211.3	3	.....	.....

boll and lack of storm resistance, but might be used to advantage if replanting had to be done late in the season.

(3) Mebane, T. S. 4120 and Mebane, T. S. 804 are not sold commercially but are types of Mebane selected and grown by the Texas Station and from which a number of strains have been and are being developed. Both types are early, produce good quality lint of 15/16 to 1 inch in length, and yield consistently.

(4) Kasch is one of the best Mebane-type varieties. It produces consistently, has a high gin turn-out, and has lint of one inch in length.

(5) New Boykin has been tested for only four years, but it is apparently one of the best Mebane strains. It produces well, has a high gin turn-out, and has lint of 1 1/16 inches in length.

(6) Mebane and Cliett's Superior, two Mebane-type varieties; Sunshine, a Rowden strain; and Lone Star and Lankart, two Lone Star strains, will produce well in any but a short season. All of these varieties produce lint of 1 to 1 1/16 inches in length and of good quality.

(7) Acala is a variety that produces lint of good quality, having 1 1/16 to 1⅛-inch staple, but has not produced as well as a number of shorter staple varieties grown during the past three years.

(8) Rowden is not well adapted. Bennett's Lone Star, Belton, and Truitt were not given a trial long enough to justify conclusions.

(9) Lightning Express is the most valuable of the varieties that normally produce lint longer than 1⅛ inches. The variety is early, but does not produce as well as a number of shorter-staple varieties.

(10) Durango, Snowflake, and Foster are not recommended on account of their low productiveness, low gin turn-out, and the difficulty with which they are harvested.

ACKNOWLEDGMENTS

Credit is due Mr. A. B. Cron, superintendent, who conducted these experiments from 1919 to 1923, and Mr. D. L. Jones, who conducted the work during 1924.

SOURCE OF SEED, 1919.

T. S. No.	Variety	Source
3675	Half and Half	N. L. Willet, Augusta, Ga.
3660	Truitt	T. B. Truitt, Ennis, Texas
3656	Acala	F. D. Watson, Italy, Texas
3653	Belton	H. Stubblefield, Belton, Texas
3632	Mebane	A. D. Mebane, Lockhart, Texas
3637	Kasch	Ed. Kasch, San Marcos, Texas
3666	Durango	S. M. Tracy, Carlsbad, N. M.
3648	Lone Star	D. A. Saunders, Greenville, Texas
3638	New Boykin	Ferguson Seed Farms, Incorporated, Sherman, Texas
3668	Foster	M. Latimer, Clarksville, Texas
3670	Snowflake	J. McLernon, Clarksville, Texas
3650	Rowden	Rowden Bros., Wills Point, Texas
3640	Bennett's Lone Star	R. L. Bennett, Paris, Texas

SOURCE OF SEED, 1920.

T. S. No.	Variety	Source
4131	Acala	F. D. Watson, Italy, Texas
4115	Bennett's Lone Star	R. L. Bennett, Paris, Texas
4114	Durango	Texas Substation No. 8, Lubbock, Texas
793	Belton	Texas Substation No. 5, Temple, Texas
4119	Lone Star	D. A. Saunders, Greenville, Texas
4120	Mebane	J. P. Horner, Lockhart, Texas
4117	Kasch	Ed. Kasch, San Marcos, Texas
3150	Lone Star Sel	Experiment Station, College Station, Texas
3668	Foster	M. Latimer, Clarksville, Texas
4118	Snowflake	J. C. McLernon, Clarksville, Texas

SOURCE OF SEED, 1921.

5989	Mebane	Texas Farmers Cotton Breeding Ass'n, Lockhart, Texas
5993	Rowden	Rowden Bros., Wills Point, Texas
5992	Kasch	Ed Kasch, San Marcos, Texas
5986	Lone Star	D. A. Saunders, Greenville, Texas
5990	Truitt	Truitt Cotton Seed Co., Waxahachie, Texas
5994	Bennett's Lone Star	R. L. Bennett, Paris, Texas
5995	Lone Star Sel	Experiment Station, College Station, Texas
5988	Acala	Watson Seed Breeding Farm, Italy, Texas
5984	Belton	Texas Substation No. 5, Temple, Texas
5987	Durango	Texas Substation No. 8, Lubbock, Texas
5991	Snowflake	J. C. McLernon, Clarksville, Texas
3668	Foster	Texas Substation No. 12, Chillicothe, Texas

SOURCE OF SEED, 1922.

6565	Lone Star	D. A. Saunders, Greenville, Texas
6573	Kasch	Ed. Kasch, San Marcos, Texas
5984	Belton	Substation No. 5, Temple, Texas
804	Mebane	Substation No. 8, Lubbock, Texas
6572	Bennett's Lone Star	R. L. Bennett & Sons, Paris, Texas
6563	Mebane	A. D. Mebane, Lockhart, Texas
6574	Rowden	Rowden Bros., Wil's Point, Texas
6566	Truitt	T. B. Truitt, Waxahachie, Texas
6570	Lone Star Sel	Main Station Agronomy Farm, College Station, Texas
6571	Acala	Jno. D. Rogers, Allenfarm, Texas
6567	Lightning Express	Pedigreed Seed Company, Hartsville, S. C.
6564	Durango	Substation No. 8, Lubbock, Texas
6575	Snowflake	John C. McLernon, Clarksville, Texas.

SOURCE OF SEED, 1923.

6781	Acala	John D. Rogers, Allenfarm, Texas
6810	Kasch	Ed. Kasch, San Marcos, Texas
4120	Mebane	J. P. Horner, Lockhart, Texas
6796	Lightning Express	Pedigreed Seed Company, Hartsville, S. C.
6802	Hallmark	A. S. McKain, Greenville, Texas
6807	Cliett's Superior	O. W. Cliett, San Marcos, Texas
7237	Mebane	Earl Flynt, Chillicothe, Texas
6786	New Boykin	Ferguson Seed Farms, Sherman, Texas
6785	Sunshine	J. W. Davidson, McKinney, Texas
6784	Bennett's Lone Star	R. L. Bennett, Paris, Texas
6783	Lone Star	D. A. Saunders, Greenville, Texas
6787	Snowflake	John McLernon, Clarksville, Texas
6797	Rowden	Rowden Bros., Wills Point, Texas

SOURCE OF SEED, 1924.

T. S. No.	Variety	Source
7419	Half and Half	M. L. Sharp, Vernon, Texas
7384	Lankart	C. S. Lankart, Waco, Texas
4120	Mebane	Substation No. 12, Chillicothe, Texas
7459	Cliett's Superior	O. W. Cliett, San Marcos, Texas
7408	Mebane	A. D. Mebane Sales Agency, Lockhart, Texas
7388	New Boykin	Ferguson Seed Farms, Sherman, Texas
7385	Kasch	Ed Kasch, San Marcos, Texas
7387	Sunshine	J. W. Davidson, McKinney, Texas
7386	Lone Star	D. A. Saunders, Greenville, Texas
804	Mebane	Substation No. 8, Lubbock, Texas
7391	Rowden	Rowden Bros. & Co., Wills Point, Texas
6314	Burnett	Substation No. 8, Lubbock, Texas
7381	Acala	John D. Rogers, Navasota, Texas
7390	Durango	Substation No. 8, Lubbock, Texas
7394	Lightning Express	Coker's Pedigreed Seed Farms, Hartsville, S. C.
7389	Snowflake	J. C. McLernon, Clarksville, Texas

SOURCE OF SEED, 1925.

7419	Half and Half	Texas Substation No. 12, Chillicothe, Texas
6314	Burnett	Texas Substation No. 12, Chillicothe, Texas
7852	New Boykin	Ferguson Seed Farms, Inc., Sherman, Texas
804	Mebane	Texas Substation No. 12, Chillicothe, Texas
4120	Mebane	Texas Substation No. 12, Chillicothe, Texas
7848	Cliett's Superior	Oran W. Cliett, San Marcos, Texas
7859	Mebane	A. D. Mebane Sales Agency, Lockhart, Texas
7858	Kasch	Ed. Kasch, San Marcos, Texas
8310	Lankart	Lankart-Bred Seed Farms, Waco, Texas
7394	Lightning Express	Texas Substation No. 12, Chillicothe, Texas
7854	Acala	John D. Rogers, Navasota, Texas
7851	Lone Star	D. A. Saunders, Greenville, Texas
7390	Durango	Texas Substation No. 12, Chillicothe, Texas
7857	Sunshine	J. W. Davidson, McKinney, Texas
7855	Rowden	Rowden Bros. & Co., Wills Point, Texas
7849	Snowflake	J. C. McLernon, Clarksville, Texas

SOURCE OF SEED, 1926.

9249	Half and Half	Summerour & Co., Vernon, Texas
9248	Western Wonder	Summerour & Son, Vernon, Texas
8587	Cook	R. E. Hudson, Auburn, Ala.
8594	Bank Account	Cris Reuter, New Orleans, La.
4120	Mebane	Texas Substation No. 12, Chillicothe, Texas
8589	Wilson's Cleveland Big Boll	Lee Wilson & Co., Wilson, Ark.
8487	Westex	Texas Substation No. 8, Lubbock, Texas
804	Mebane	Texas Substation No. 12, Chillicothe, Texas
8609	Acala	John D. Rogers, Navasota, Texas
8599	New Boykin	Ferguson Seed Farms, Inc., Sherman, Texas
8605	Lightning Express	Coker's Pedigreed Seed Farm, Hartsville, S. C.
8597	Trice	Mississippi Agricultural Experiment Station, Agricultural College, Miss.
8596	Sunshine	John W. Davidson, McKinney, Texas
6314	Burnett	Texas Substation No. 12, Chillicothe, Texas
8585	Kasch	Ed. Kasch, San Marcos, Texas
8590	Lone Star	D. A. Saunders Lone Star Seed Co., Greenville, Texas
8593	Lankart	Lankart Bred Seed Farms, Waco, Texas
8613	Rowden	Rowden Bros. & Co., Wills Point, Texas
7390	Durango	Texas Substation No. 8, Lubbock, Texas
8588	Mebane	A. D. Mebane Sales Agency, Lockhart, Texas
8584	Cliett's Superior	Oran W. Cliett, San Marcos, Texas
9247	Kekchi	Texas Substation No. 12, Chillicothe, Texas
8601	Blue Wagon	S. Maston Nixon, Robstown, Texas
8595	Snowflake	John C. McLernon, Clarksville, Texas